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ABSTRACT

Affect arousing and energizing properties of positive and negative reinforcing stimuli were investigated. Subjects received positive evaluations (PE), similar attitudes (SA), dissimilar attitudes (DA) or negative evaluations (NE) presented on slides. Pre- and post-slide semantic differentials were filled out by each subject. All subjects then learned a paired-associates (PA) list composed of both non-competitive and competitive pairs. Taylor-Spence drive theory predictions for performance on non-competitive and competitive tasks provided a sensitive measure of relative drive or energization levels induced by the reinforcing stimuli. Consistent with past research, semantic differential scores showed NE more powerful than DA in arousing negative affect and PE more powerful than SA in arousing positive affect. The PE and SA conditions were hypothesized to be energizing rather than drive reducing. Performance on the PA learning task showed a higher energization level for the NE condition than for the DA condition. In support of the hypothesis, the PE condition showed a higher energization level than the SA condition. (Author)

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Energization Properties of
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The effects of disagreeing and agreeing attitude statements have been conceptualized within a reinforcement framework by many investigators, (Byrne, 1971; Byrne & Lamberth, 1971; Golightly & Byrne, 1964; Lamberth, Gouaux & Davis, 1972). The negative affect induced by disagreeing attitudes has been investigated at some length (Lamberth, Gouaux & Padd, in press; Lombardo, Libkuman & Weiss, 1970; Lombardo, Weiss & Buchanan, 1972) and appears to have many of the properties usually ascribed to drive arousal within the Hull-Spence theoretical framework.

The positive affect arousing properties of agreeing attitudes have also been investigated but the results are less clear. In a series of experiments, Lamberth, Gouaux & Padd (in press) used the semantic differential to investigate the drive or affect eliciting and reducing properties of similar and dissimilar attitude statements and positive and negative evaluative statements. Negative affect was elicited by both the dissimilar attitude statements and negative evaluative statements while positive affect was elicited only by the more powerful positive evaluative statements. Lamberth, Gouaux & Padd (in press) noted that the semantic differential, used as the measure of this affect, was perhaps not sensitive enough to detect positive affect that might have been elicited by similar attitude statements.

Lombardo, Libkuman & Weiss (1970) employed the design and theoretical predictions of Spence (Spence, Farber & McFann, 1956) in a study of the

drive properties of disagreement and agreement. A competition or a non-competition paired-associates learning task was presented to subjects who had received agreement or disagreement. Subjects who had received disagreement showed a higher drive level by performing better on the non-competition list or worse on the competition list than subjects who had received agreement. These results were interpreted to mean that disagreement was drive inducing and agreement was drive reducing.

Lombardo, et al (1970) used 50% agreement for both agree and disagree groups because "subjects became highly suspicious when they were agreed with or disagreed with too regularly (p. 8)." The differences between their agreement and disagreement manipulations involved differences in item importance, i.e., the agree group received agreement on important items and the disagreement they received was limited to unimportant items, while the disagree group received the reverse. Since only one level of an hypothesized drive arousing stimulus and one level of hypothesized drive reducing stimulus were employed, it was impossible to determine from the Lombardo et. al. results whether the two resulting drive levels were two unequal strengths of positive or negative affect or one stimulus which aroused positive affect and one stimulus which aroused negative affect. Finally, the Lombardo method of manipulating arousal is clearly escape conditioning, while the preliminary evidence indicates that the usual situation in an attraction experiment is appetitive conditioning (Lamberth, Gouaux & Davis, 1972).

The present investigation was designed to determine whether positive social stimuli (e.g. agreeing attitude statements and positive evaluative statements) are reinforcing merely because they reduce some chronic aversive drive state (negative affect) or, alternatively, because they elicit some positive (qualitatively different) affect. The design of the present experiment made it possible to derive differential predictions from the two alternative views of these stimuli. Evaluative statements have been shown to be qualitatively identical but quantitatively more powerful than attitude statements (Byrne & Rhamey, 1965; Clore & Baldridge, 1970; Lamberth, Gouaux & Padd, in press). Positive evaluative statements should reduce a chronic aversive drive level more than similar attitude statements if they are merely drive reducing. Alternatively, if positive affect elicited by the positive stimuli has energization or arousal properties, the evaluative statements should elicit a higher affect or arousal level than the attitude statements. In other words, if SA show more arousal than PE, the positive stimuli must reduce some negative chronic drive state (e.g. anxiety), but if PE shows more arousal than SA, the positive stimuli must induce some positive affect arousal.

Performance on the non-competitive and competitive paired-associates lists of Spence, Farber & McFann (1956) has been used extensively to investigate levels of various affective and motivational states considered analogs of the Hull-Spence drive state (Amoroso & Walters, 1969; Cottrell, Rittle & Wack, 1967; Lipsitt & Spears, 1965; Lombardo, Libkuman & Weiss, 1970; Smith, 1969; Spence & Spence, 1966; Waterman,

1969). Performance on the non-competitive pairs is facilitated by increased drive or arousal level while performance on the competitive pairs is hindered. Performance on the two types of tasks provides a sensitive measure of drive, arousal or energization properties of stimuli. The combination of semantic differential (self-report) scores and the PA learning task (behavioral measure) in the present experiment provided a comprehensive measure of the arousal and energization properties of positive and negative reinforcing stimuli. It was hypothesized that positive and negative reinforcing stimuli would arouse positive and negative affect respectively, consistent with previous research. It was further hypothesized that evaluations would arouse more affect (positive and negative) than attitude statements. Energization properties of the reinforcing stimuli were hypothesized to increase with increased magnitude of reinforcement.

Method

Subjects were 40 University of Oklahoma undergraduates who had filled out a 12 item survey of attitudes four to six weeks earlier in the semester and who volunteered for the experiment. Subjects were randomly assigned to one of four groups to be given (1) positive evaluative statements (PE), (2) similar attitude statements (SA), (3) dissimilar attitude statements (DA), or (4) negative evaluative statements (NE) during the first half of the experiment. During the second half of the experiment all subjects received a paired-associates learning task with the list materials identical to those of Spence, Farber &

McFann (1956). The list contained four non-competitive pairs and eight competitive pairs of adjectives presented in three random orders on a Lafayette Model 303-B memory drum. The anticipation method was used with a 2:2 second rate of presentation following Spence, et al (1956). As a measure of affect, semantic differentials were given before and after the drive manipulation.

Subject sign-up sheets described the participations as two short experiments. When subjects first reported for the experiment, they were seated individually in small experimental rooms and told that since the experiments were short and the subject pool was small they would take part in two experiments in order to fulfill the time expected of them. Subjects were then told that the first experiment was to begin. Subjects receiving the evaluative statements were told that another student had looked at their attitude survey and had evaluated them. Subjects receiving the attitude statements were told that another same sex student had filled out the attitude survey and they would see how this student had checked the various items. Both attitudinal and evaluative statements were presented by slides. Subjects were told that this was easier than presenting the actual Interpersonal Judgment Scale or survey and would further insure the anonymity of each subject. Following this explanation, each subject was asked to fill out a semantic differential indicating how they felt that very moment. Immediately after filling out the semantic differential, each subject was shown the appropriate set of 12 slides projected on the wall directly in front of him by a Kodak Carousel pro-

jector. Each slide remained on the wall for 8 seconds and subjects were asked to read aloud the items checked. After the slides were presented, the semantic differential was again given to each subject. Subjects were told that the first experiment was over and that the second experiment would begin shortly and asked to remain seated. The slide projector was removed from the room and a memory drum was placed on the table in front of the subject. Standard paired-associates learning instructions were given and a practice list of six pairs of nouns was presented to familiarize each subject with the procedure. Subjects were then switched to the test list. Errors, overt intrusions and correct responses were recorded on the score sheets by the experimenter. All subjects were run to a criterion of two successive perfect trials for the entire list.

Following the learning task, subjects receiving the NE slides were told that the evaluations were not actually of themselves but merely a standard set necessary to create the emotional state being investigated. All subjects were asked not to discuss the experiment for three weeks while the experiment was being completed.

Results and Discussion

The direction and magnitude of change in the semantic differential scores indicated that the experimental manipulation in the first half of the experiment was successful. The effect on the subjects of observing and reading the checked items on the slides was as predicted. The PE and SA slides increased the scores on the semantic differential while DA and NE slides decreased the scores. Also, the magnitude of effect was

shown to be greater for the evaluation statements (PE & NE) than for the attitude statements (SA & DA). Table 1 contains means for the semantic differential for the four groups. Analysis of variance on semantic differential scores

Insert Table 1 about here

indicated that the groups by pre- and post-slide semantic differential interaction was significant ($F = 5.146$, $df = 3/36$, $p < .005$). Table 2 contains the

Insert Table 2 about here

means on trials to criteria, errors and overt intrusions in the paired-associates learning task for the four groups. A repeated measures analysis of variance on trials to criterion showed the main effect for groups was nonsignificant ($F < 1$). A highly significant lists effect ($F = 90.06$, $df = 1/36$, $p < .0001$) as well as a significant groups by lists interaction on trials to criterion ($F = 5.877$, $df = 3/36$, $p < .0026$) was shown. An examination of the means for errors shows that NE and PE subjects exhibited a higher drive or energization level than DA and SA subjects. The NE and PE groups made fewer errors per non-competitive pair and more errors per competitive pair than the DA and SA groups. The means for overt intrusions show the same pattern when the four groups are compared.

Previous research investigating the drive properties of negative and positive social stimuli or of disagreement and agreement has employed a

single negative and a single positive condition. When means for trials to criterion or errors on the attitude statements alone are examined, SA shows a lower energization level than DA on the paired-associates learning tasks. This has supported the assumptions of past research that agreement is drive reducing (Lombardo, Lipkuman & Weiss, 1972). However, when means for trials to criterion or errors on the learning tasks of all four conditions in the present study are examined together with means for the Semantic differential, a drive reduction hypothesis becomes more tenuous. The results showing PE to have greater energization properties than SA indicate positive affective arousal.

Further support of the positive affective arousal properties of PE and SA stimuli appeared when overt intrusions in the learning tasks were examined. Again, the groups main effects was non-significant ($F < 1$) while the lists main effect was significant ($F = 19.55$, $df = 1/36$, $p < .0002$). The mean number of overt intrusions per word-pair on each trial is shown in Table 2 for the four conditions on the non-competitive and competitive lists. While the interaction did not reach an acceptable level of significance, a comparison of the DA and SA conditions alone or of the NE and PE groups alone would support a drive reduction hypothesis while an examination of the errors for all four groups fails to support the drive reduction hypothesis. The number of errors as well as the number of overt intrusions indicate that the PE stimuli have greater energization properties than SA as well as greater positive affect arousal.

These results indicate that the interpretation of positive social stimuli (e.g. PE statements and SA statements) as reinforcers merely through their reduction of some chronic aversive state (e.g. anxiety) is limited to situations analogous to escape or defense conditioning. In the present situation, SA and PE stimuli produced positive affect arousal or "social drive." Energization properties were shown to be associated with the positive social stimuli and the more powerful social stimuli (PE) statements showed greater energizing properties.

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Footnotes

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2) Requests for reprints should be sent to John Lamberth, Department of Psychology, University of Oklahoma, Norman, Oklahoma 73069.

Table 1

Semantic differential means for four groups

Group	Pre-Slide	Post-Slide	Change
NE	32.20	26.50	-5.70
DA	34.20	31.50	-2.70
SA	32.40	33.30	+0.90
PE	32.00	34.40	+2.40

Table 2
Means for trials to criteria, errors and overt
intrusions for the four groups

Measure	Groups	NE	DA	SA	PE
Trials to Criteria					
Non-Competitional		5.58	5.88	6.23	5.67
Competitional		10.36	8.33	7.61	8.52
Percent Errors					
Non-Competitional		20.94	22.48	22.81	21.26
Competitional		45.61	39.91	35.93	38.89
Overt Intrusions					
Non-Competitional		.25	.33	.40	.25
Competitional		.79	.75	.68	.75